



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

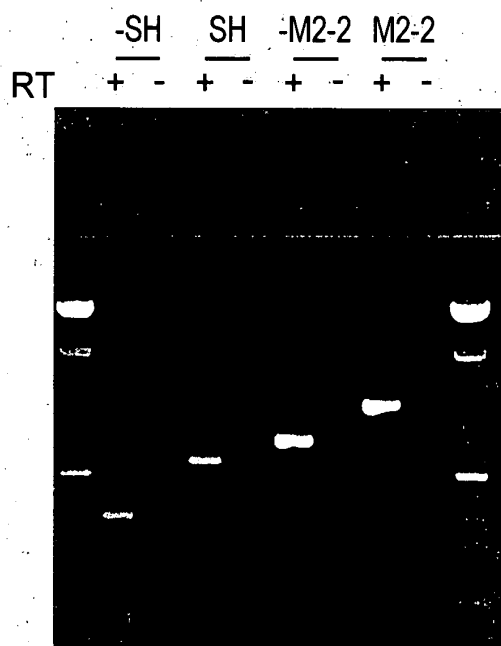


FIG.12A

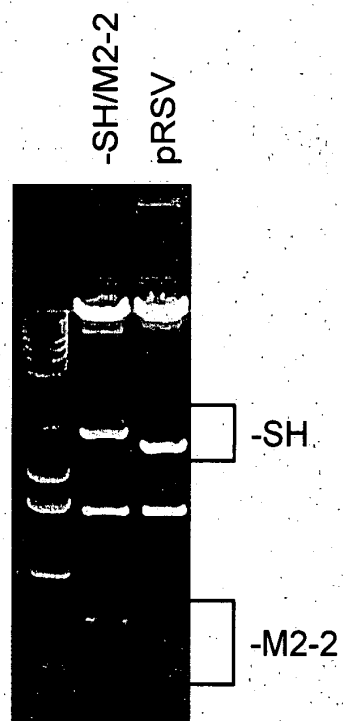


FIG.12B



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

MDPIINGNSANVYLT DSYLKGVISFSECNA LGSYIFNGPYLKNDY TNLISRQNPLIEHMN LKKNITQSLISKYH 75
KGEIKLEEPTYFQSL LMTYKSMTSSEQIAT TNLKKIIRRAIEIS DVKVYAILNKLGLKE KDKIKSNNGQEDENS 150
VITTIKDDILSAVK DNQSHLKADKNHSTK QRDITIKTTLKKLMC SMQPPSWLIHWFNL YTKLNNILTQYRSNE 225
VKNHGFTLIDNQTLS GFQFILNQYGCIVYH KELKRITVTYVNOFL TWKDISLSRLNVCLI TWISNCLNTLNKSLG 300
LRCGFNNVILTQLFL YGDCILKLFHNEGFI IIEKEVEGFIMSLIN IITEEDQFKREYNSM LNNITDAANKAQKNL 375
LSRVCHTLLDKTVSD NIINGRWIILLSKFL KLIKLAGDNNLNNLS ELYFLFRIFGHPVD ERQAMDAVKINCNET 450
KFYLLSSLSMLRGAF IYRIIKGFVNNYNRW PTLRNAIVLPLRWLT YYKLNTPSLELTE RDLIVLSGLRFYREF 525
RLPKKVDLEMIINDK AISPKNLIWTSFPR NYMPSHIQNYIEHEK LKFSSEDKSRVLEY YLRDNKFNECDLYNC 600
VVNQSYLNNPNHVS LTGKERELSVGRMFA MQPGMFRQVQILAEK MIAENILQFFPESLT RYGDLELQKILELKA 675
GTSNKSRYNDNYYN YISKCSIIITLSKEN QAFRYETSCICSDVL DELHGVQSLFSWLHL TIPHVTTICTYRHAP 750
PYIGDHIVDLNNVDE QSGLYRYHMGGIEGW CQKLWTIEAISLLDL ISLKGKFSITALING DNQSIDISKPIRLME 825
GQTHAQADYLLALNS LKLLYKEYAGIGHKL KGTETYISRDMQFMS KTIQHNGVYYPASIK KVLPGVPWINTILDD 900
FKVSLESIGSLTQEL EYRGESLLCSLIFRN WLYNQJALQLKNHA LCNNKLYLDILKVLK HLKTTFFNLNDIDTAL 975
TLYMNLPMFLGGGDP NLLYRSFYRRTPDFL TEAIVHSVFILSYVT NHDLKOKLQDLSDDR LNKFLTCTIITFDKNP 1050
NAEFVTLMRDPOALG SERQAKITSEINRLA VTEVLSTAPNKIFSK SAQHYTTTEIDLNDI MQNIEPTYPHGLRW 1125
YESLPFYKAEKIVNL ISGTSKIITNILEKTS AIDLTDIDRATEMMR KNITLLIRILPLDCN RDKREILSMENLSIT 1200
ELSKYVREWSLSN IVGVTSPSITMTMDI KYTSTISSGIIIEK YVNSLTRGERGPTK PMVGSSTQEKKTMPV 1275
YNROVLTKKORDQID LLAKLDMWYASIDNK DEFMEELSIGTLGLT YEKAKKLFQYLSVN YLHRLTVSSRPCEFP 1350
ASTPAYRTTNYHFDI SPINRILTEKYGDED IDIVFQNCISFGLSL MSWEQFTNVCNRI ILIPKLEIHLMKPP 1425
IFTGDVDIHLKQVI QKQHMFLPKISLTQ YVELFSLNKTLSKGS HVNSNLI LAHKISDY FHNTYILSTNLAGHW 1500
ILIIQLMKDSKGIFE KDWGEGYITDHF IN LKVFNAYKTYLLCF HKGYGKAKLECDMNT SDLLCVLELIDSSYW 1575
KMSKVFLQEKVIKY ILSQDASLHRVKGCH SFKLWFLKRLNVAEF TVCPWVNNIDYHPTH MKAILTYIDLVRMGL 1650
INIDRIHIKNKHKN DEFYTSNLFYINYNF SDNTHLLTKHIRTAN SELENNYKNLYHPTP ETLENILANPIKSND 1725
KKTLDNDYCIGKNVDS IMLPLSNKKLIKSS AMIRTNYSKQDLNLY FPMVWIDRIIDHSGN TAKSNQLYTTTSHQI 1800
SLVHNSTSLYCMPLW HHINRFNFVSSTGC KISIEYILKDLKID PNCIAFIGEGAGNLL LRTVVELHPDIRYIY 1875
RSLKDCNDHSLPIEF LRLYNGHINIDYGEN LTIPATDATNNIHWIS YLHIKFAEPISLFCV DAELSVTNWSKIII 1950
EWSKHVRKCKYCSSV NKCMLIVKYHAQDDI DFKLDNITILKTYVC LGSKLKGSEVYLVLT IGPANIFPVFNVVQN 2025
AKLILSRKTNFIMPK KADKESIDANIKSLI PFLCYPIITKKGINTA LSKLSKSVSGDILSY STAGRNEVFSNKLIN 2100
HKHMNLIKWFNHLN FRSTELNHNLYMVE STYPYLSSELNSLT NELKKLIKITGSLLY NFHNE 2165

C Cysteine residues

C Cysteine residues that were changed to valine or aspartic acid

C Cysteine residues deleted

FIG.11



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

MDPIINGNSANVYL T DSYLKGVISFSECNA LGSYIFNGPYLKNDY TNLISRQNP LIEHMN LKKNITQSLISKYH 75
KGEIKLEEPTVFQSL LMTYKSMTSSEQIAT TNLKKIIRRAIEIS DVKVVAITLNLKGLKE KDKIKSNNGQEDNS 150
VITTIKDDILSAVK DNQSHLKADKNHSTK QRDITIKTLLKKLMC SMQHPPSWLIHWFNL YTKLNNILTQYRSNE 225
VKNHGFTLIDNQTL S GFQFILNQYGCIVYH KELKRITVTYNNQFL TWKDISLSRLNVCLI TWISNCLNTLNKSLG 300
LRCGFNNVILTQFL YGDCILKLFHNEGFI TIKEVEGFIMSLIN ITEEQDFRKYNSM LNNITDAANKAQKNL 375
LSRVCHTLIDKTVSD NIINGRWIILLSKFL KLIKLAGDNNLNLS ELYFLFRIFGHPMVD ERQAMDAVKINCNET 450
KFYLLSSLMLRGAF IYRIIKGFVNYYNRW PTLRNAIVPLRWLT YKLNTPSLELLETE ROLIVLSGLRFYREF 525
RLPKKVDLEMIINDK AISPKNLIWTSFPR NYMPSHIQNYIEHEK LKFSSEKSRVLEY YLRDNKFNECOLYNC 600
VWQSYLNNPNHVS LTGKERELSVGRMFA MQPGMFRQVQILAEK MIAENILQFFPESLT RYGDLELQKILELKA 675
GISNKSRYNDNYNN YISKCSITDLSKFN QAFRYETSCICSDVL DELHGVQSLFSWLHL TIPHVTTICTYRHAP 750
PYIGDHIVDLNNVDE QSGLYRYHMGGIEGW CQKLWTIEAISLLDL ISLKGFSITALING DNQSIDISKPIRLME 825
GQTHAQADYLLALNS LKLLYKEYAGIGHKL KGTETYISRDMQFMS KTIQHNGVYYPASIK KVLPGVPWINTILDD 900
FKVSLESIGSLTQEL EYRGESLLCSLIFRN VWLYNQIALQLKNHA LCNNKLYLDILKVLK HLKTTFFNLONIDTAL 975
TLYMNLPMFLGGGDP NLLYRSFYRRTPDFL TEAIVHSVFILSYT NHDLDKQLQDLSDDR LNKFLTCTITFDKNP 1050
NAEFVTLMRDPQALG SERQAKITSEINRLA VTEVLSTAPNKIFSK SAQHYTTTTEIDLNDI MONIEPTYPHGLRW 1125
YESLPFYKAEKIVNL ISGTSITNILEKTS AIDLTIDDRATEMMR KNITLLIRILPLDCN RDKREILSMENLSIT 1200
ELSKYVRERSWSLSN IVGVTSPSIMYTMDI KYTTSTISSGIIIEK YNVNSLTRGERGPTK PWVGSSTQEKKTMPV 1275
YNRQVLTKKORDQID LLAKLDWVYASIDNK DEFMEELSIGTGLT YEKAKKLPQYLSVN YLHRLTVSSRPCFFP 1350
ASIPAYRTTNYHFDI SPINRILTEKYGDED IDIVFQNCISFGLSL MSVVEQFTNVCPNRI ILIPKLNELHMKPP 1425
IFTGDVDIHKLKQVI QKQHMFLPKISLTQ YVELFSLNKTLSGS HVNSNLI LAHKISDY FHNTYILSTNLAGHW 1500
ILIIQLMKDSKGIFE KDWGEGYITDHMFN LKVFVNAYKTYLLCF HKGYGKAKLECDMNT SDLLCVLELIDSSVW 1575
KSMKVFLEQKVICY TISODASLHRVKGCH SFKLWFLKRLNVAEF TVCPWVNVNIDYHPTH MKAILITYIDLVRMGL 1650
INDRIHIKNKHKN DEFYTSNLFYINYNF SDNTHLLTKHIRIAN SELENNYNNKLYHPTP ETLLENILANPIKSND 1725
KKTLDNYCIGKNVDS IMLPLLSNKKLIKSS AMIRTNYSKQDLYNL FPMVVIDRIIDHSGN TAKSNQLYTTTSHQI 1800
SLVHNSTSLYCMPLPW HHINRFNFVFSSTGC KISIEYILKDLKID PNCIAFIGEGAGNLL LRTVVELHPDIRYIY 1875
RSLKDCNDHSLPIEF LRLYNHGINIDYGEN LTIPATDATNNIHS YLHIKFAEPIISLFVC DAELSVTVNWSKIII 1950
EMSKHVRCKYCSSV NKCMILVYKHAQDDI DFKLDNITILKTYVC LGSKLKGSEVYVLT IGPANIFPVFNVVQN 2025
AKLILSRKTNFIMPK KADKESIDANIKSLI PFLCYPITKKGINTA LSKLKSUVSGDILSY SIAGRNEVFSNKLIN 2100
HKHMMILKWFNHVLN FRSTELNYNHLYMVE STYPYLSSELLNSLT NELKKLIKITGSLLY NFHNE 2165

Charged Clusters (Amino Acids that are underlined were changed to alanines)
Mutations in cpts-248/404
Mutation in cpts530

FIG.10



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

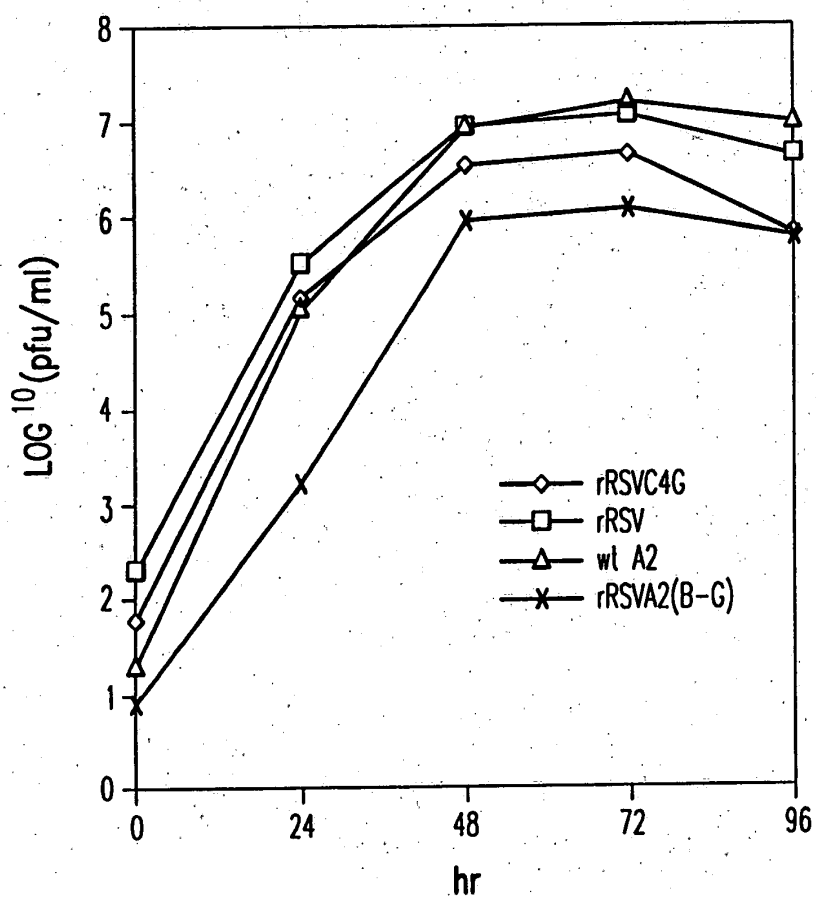


FIG.9



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

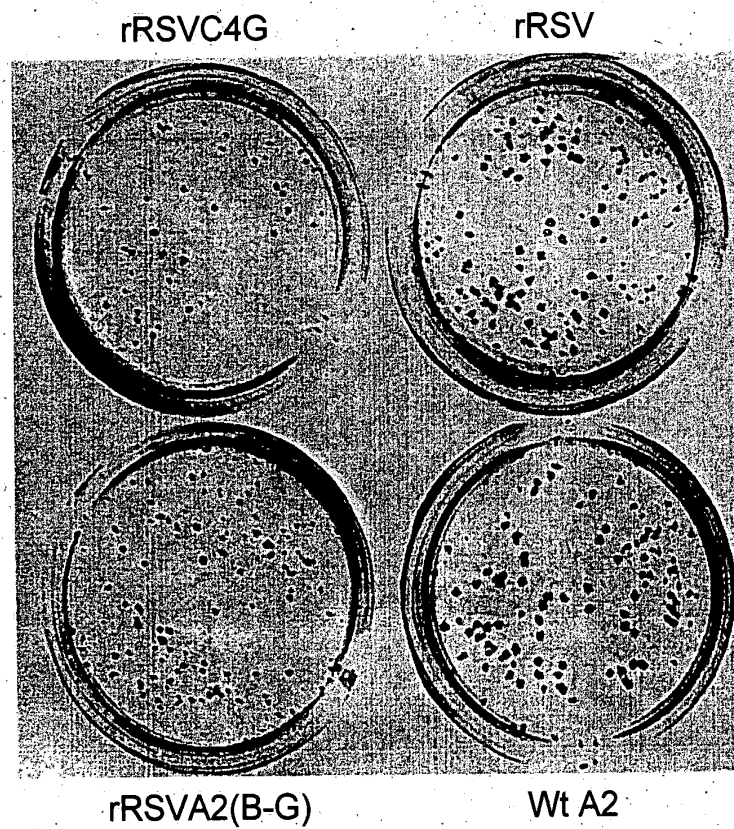


FIG.8



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: R combinant RSV Expression
Systems and Vaccines

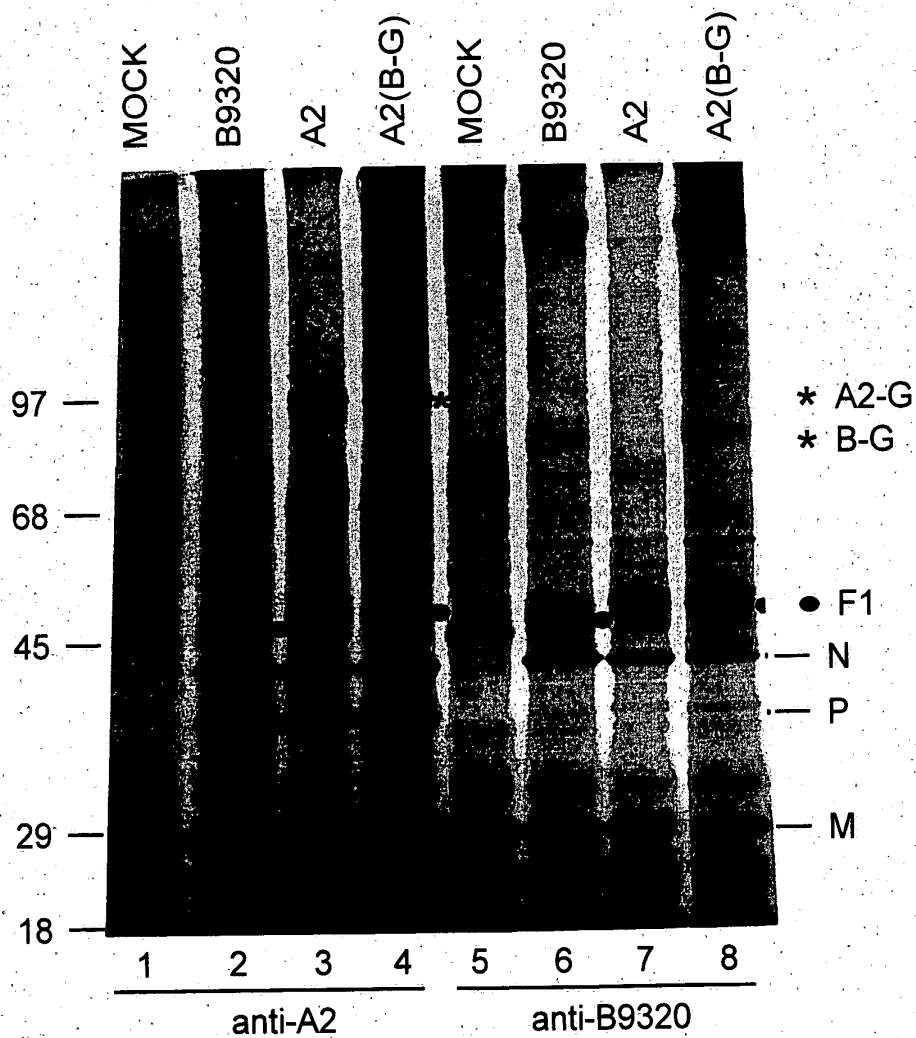


FIG. 7



Docket No.: 7682-045-999
 Serial No.: 09/161,122
 Inventor(s): Jin et al.
 Title: Recombinant RSV Expression
 Systems and Vaccines.

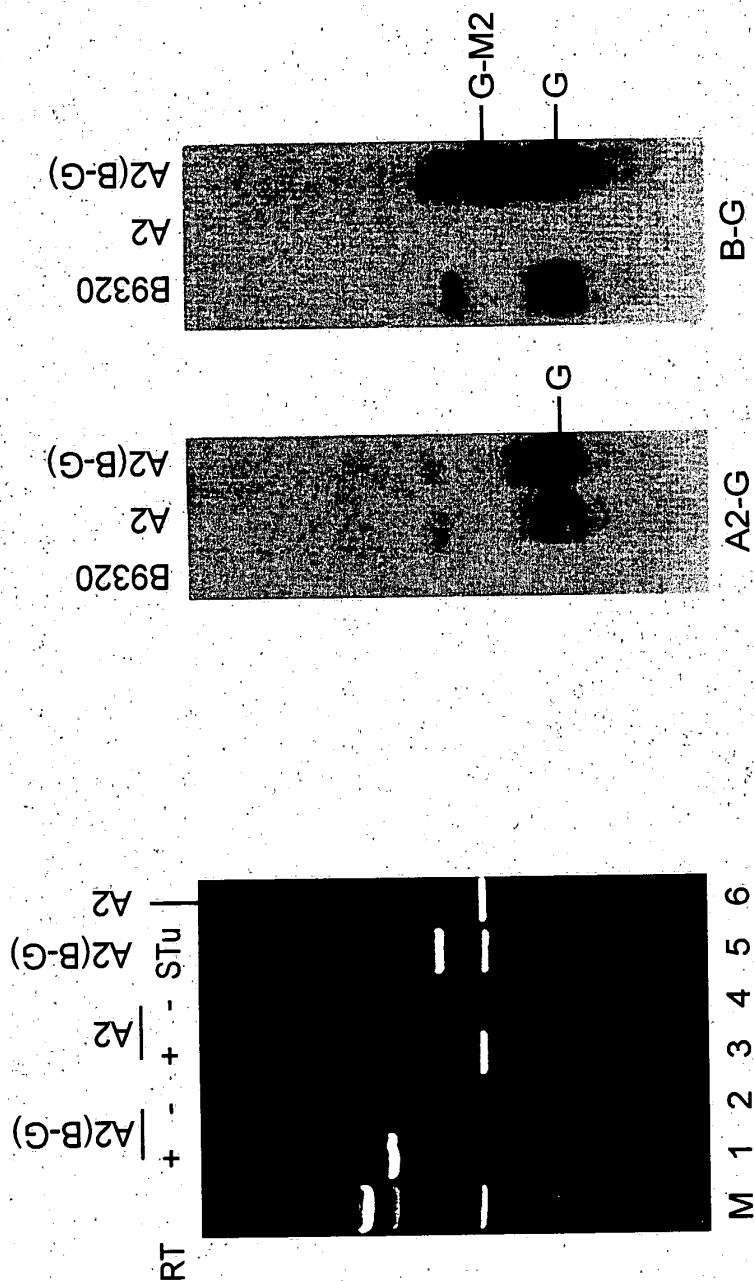


FIG. 6B

FIG. 6A



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

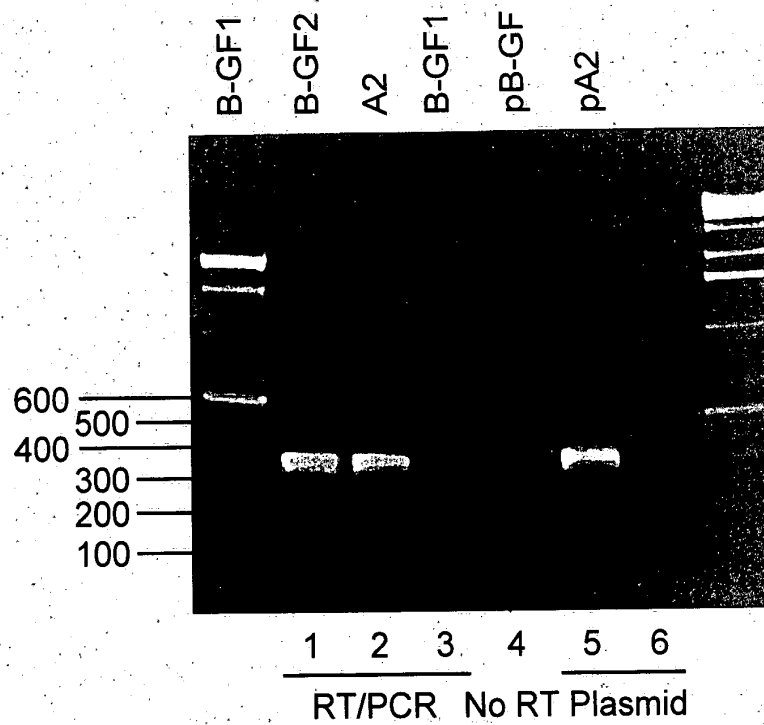


FIG.5



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

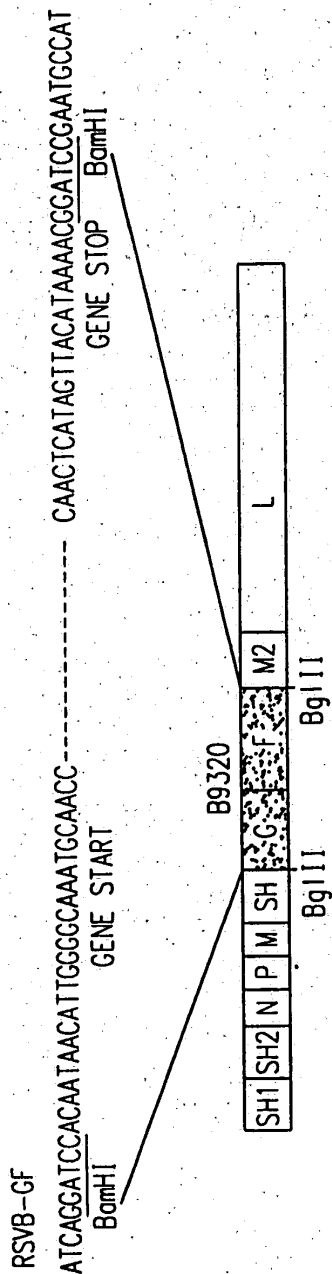


FIG. 4A

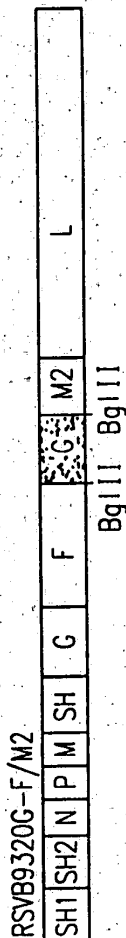


FIG. 4B

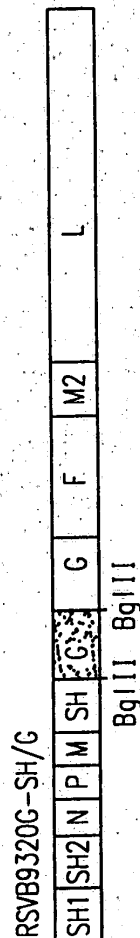
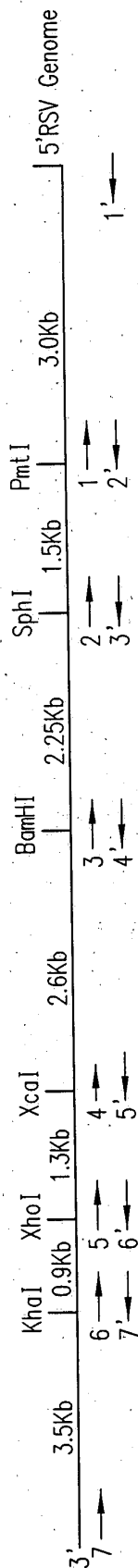


FIG. 4C



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines



Primer Sequences:

- 1: 5' GTTTAACACGTTGGTGAG
- 2: 5' ACATATAGGCATGCACC
- 3: 5' GACAAAATGGATCCCAT
- 4: 5' TGGTTGGTATACAGTGT
- 5: 5' TACCAAGAGCTCGAGTCA
- 6: 5' TTTACCATATGCGCTAATGT
- 7: 5' ACGCGAAAAAATGCGTACA
- 1: 5' ACCGAGAAAAAAGTGTCAC
- 2: 5' CTCACCAGCTGTTAAAC
- 3: 5' GGTGCATGCGCTATATGT
- 4: 5' AATGGGATCCATTTTGTCC
- 5: 5' AACACTGGTATACCAACCA
- 6: 5' TGA CTGAGCTCTTGGTA
- 7: 5' ACATTAGCGCATATGGTAAA

FIG.3



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

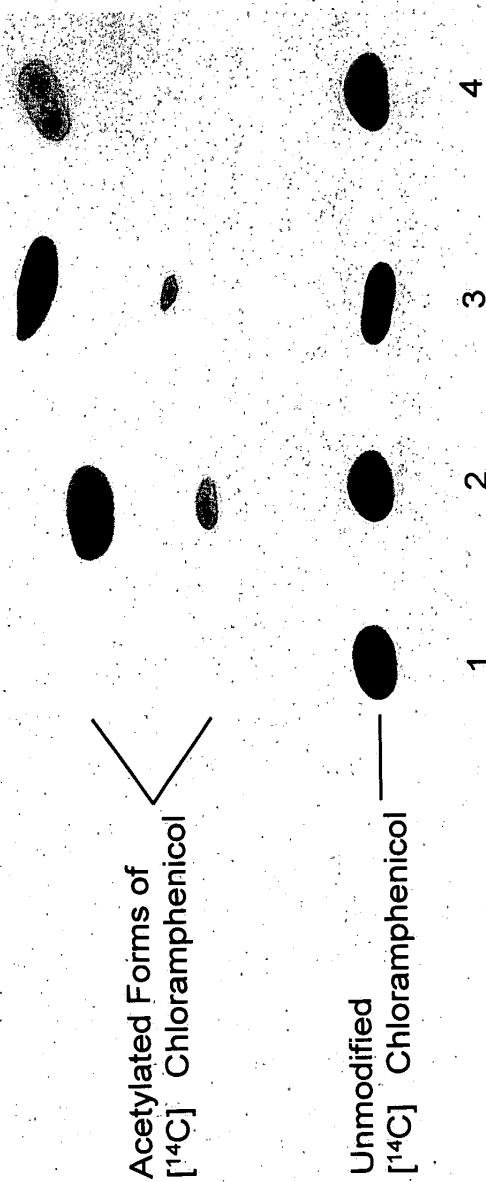


FIG.2



Docket No.: 7682-045-999
 Serial No.: 09/161,122
 Inventor(s): Jin et al.
 Title: Recombinant RSV Expression
 Systems and Vaccines

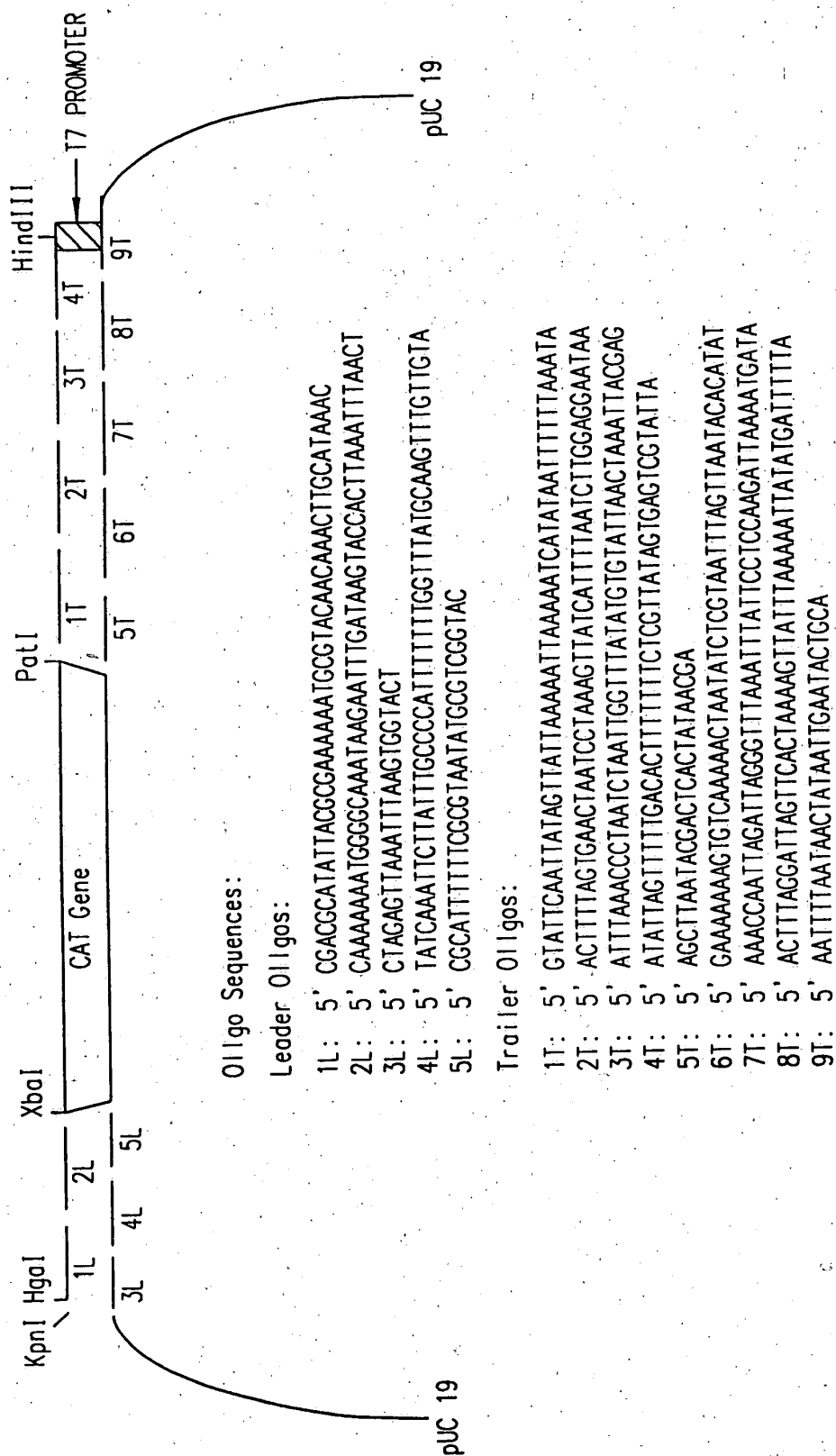


FIG.1